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Number 14

Proceedings

of

The Canadian Phytopathological Society

Thirteenth Session

June 24-27, 1946

Macdonald College

STE. ANNE DE BELLEVUE

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Editorial Committee

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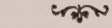

LIST OF OFFICERS AND COUNCIL
1945-1946

President
L. W. KOCH, Dominion Laboratory of Plant Pathology, Harrow, Ont.

Vice-President
THORVALDUR JOHNSON, Dominion Laboratory of Plant Pathology, Winnipeg, Man.

Secretary-Treasurer
R. C. RUSSELL, Dominion Laboratory of Plant Pathology, Saskatoon, Sask.

Councillors
R. E. FITZPATRICK, Dominion Laboratory of Plant Pathology, Summerland, B.C.
T. C. VANTERPOOL, University of Saskatchewan, Saskatoon, Sask.

Gordon Alexander Scott

B.S.A., M.Sc.

1895-1946

It is with deep regret that we record the sudden death of Gordon Scott on February 28, 1946. Mr. Scott was born at Perth, Ontario, on May 7, 1895. He joined the army at the beginning of the Great War, serving for four years in France. On demobilization he entered the Ontario Agricultural College and graduated in 1923. He was awarded the Macdonald scholarship for 1923 and the Chilean Nitrate Committee scholarship for 1924 at Macdonald College, where he obtained the M.Sc. degree.

In February, 1925, Mr. Scott joined the staff of the Division of Botany, CanadianDepartment of Agriculture, and was sent to the Laboratory of Plant Pathology at Saskatoon. For four years his studies were largely concerned with root diseases of cereals, but during this period he also began investigations of seed-borne diseases which later became his major interest. In November, 1929, Mr. Scott resigned from his position of Plant Pathologist and went to Williamstown, Ontario, to operate the farm where he had spent many of his boyhood vacations. In August of the same year he married Elizabeth Alexander Lockhart in Saskatoon. One daughter, Jeanne, was born of this union.

In May, 1934, he rejoined the staff of the Division in Ottawa, where he remained until his death. During this period he rose to the position of Agricultural Scientist, Grade 4.

During his second period of employment in the Division of Botany, Mr. Scott devoted his attention to the study of seed-borne pathogens. The first few years were spent chiefly on devising methods and techniques for the examination of seed for the presence of fungi. When the war broke out and the Canadian seed industry expanded, he was able to apply these methods in large-scale testing of seeds. He was outstandingly successful in putting across to the growers and others engaged in the seed industry the necessity of considering disease as a factor in seed production and in convincing them of the value of the work on seed-borne pathogens. He possessed in high degree those intangible qualities of personality required to gain and hold the confidence of those coming within the sphere of his influence. Through these qualities he has made great contributions to the advancement of his chosen field of endeavour.

INVITATION PAPER

At the invitation of the Society, Dr. Rene Pomerleau of the Department of Lands and Forests of the Province of Quebec, presented a paper, illustrated with lantern slides, dealing with the campaign against the Dutch Elm Disease in his province. The subject was ably presented, and his paper was enjoyed and appreciated by all of his listeners. An abstract of this paper may be found on pages 15 and 16.

THE CANADIAN PHYTOPATHOLOGICAL SOCIETY
CONSTITUTION

ARTICLE I

This society shall be known as The Canadian Phytopathological Society.

ARTICLE II

Membership

Section 1.—All persons interested in the science or practice of plant pathology shall be eligible for membership.

Section 2.—There shall be five kinds of members:

(a) Regular members.

(b) Life members: any member who may desire to compound for his annual subscriptions by the payment of the life member's fee.

(c) Student members: any junior, senior or post-graduate student at a university or agricultural college of recognized standing.

*(d) Honorary members: any person, whether or not a member of the society, who has rendered eminent service, or has done honor in any way to the society, or to the profession, shall be eligible for election as an honorary member.

(e) Charter members: all members joining the society prior to March 1, 1930, shall be duly enrolled as charter members.

ARTICLE III

Membership Fees

Section 1.—Each member shall pay such fees as the society shall determine.

*Section 2.—The name of any member whose fees are unpaid at the end of the fiscal year shall be removed from the list of members. At any subsequent time, on payment of the fees due, such a member may be reinstated by the Secretary-Treasurer without the formalities required for a new member.

ARTICLE IV

Election of Members

*Section 1.—Regular and student members may be elected only at a regular meeting of the Society. Applications for membership must be endorsed by at least two members of the Society, and must be approved by the Council.

Section 2.—Honorary members shall be recommended by the Council, and be elected by unanimous consent of the members present at any regular meeting of the Society.

ARTICLE V

Officers

Section 1.—The officers of the Society shall consist of one President, one Vice-President, one Secretary-Treasurer, and two Councillors (one of whom shall be the retiring President). The President, Vice-President and Councillors shall serve for one year, and the Secretary-Treasurer for two years. The Council shall have power to fill any vacancies occurring in the interim between elections. The Council shall consist of the President, Vice-President, Secretary-Treasurer, the retiring President, and one additional Councillor to be elected by the Society.

*Section 2.—The Council shall each year appoint as many Regional Representatives as may be authorized by motion passed at a business session of the Annual Meeting. It shall be the duty of such Representatives to act as liaison officers between the Council and the Society members in their various districts and to arrange such regional meetings as may from time to time be desirable.

*ARTICLE VI

Election of Officers

(a) The nomination of officers shall be performed by a Nominating Committee.

(b) The Nominating Committee shall consist of the two immediate past presidents of the Society (retiring President as Chairman) and three additional members elected at the first business session of an annual meeting. The Nominating Committee shall submit a slate of officers to the Secretary ninety days prior to the first Annual Meeting following their appointment. Not more than three nominees shall be proposed by the Committee for any one office.

(c) Not less than sixty days prior to an Annual Meeting the Secretary shall send to all members notifications of the nominations made by the Nominating Committee.

(d) Additional nominations for any office may be made from the Society at large but notice of such nominations shall reach the Secretary at least thirty days prior to the Annual Meeting and be signed by not less than five members.

(e) Whenever a vote is necessary for the election of officers, the ballot shall be prepared by the Secretary and, for each office, shall contain the names of the nominees of the Nominating Committee and any additional nominations made for that office according to the regulations set forth under section (d) of this article.

(f) One ballot shall be mailed to each member privileged to vote (g), who shall indicate his preference for the candidates for each office by marking a first, second, and third choice in each case. The ballot shall be returned enclosed in an outer identification envelope. The ballots shall be counted by a committee of three scrutineers consisting of the Secretary as Chairman and two additional persons appointed by him. The Chairman shall withhold his vote until the ballots have been counted, but shall cast the deciding vote in case of a tie. The "first choice" votes for each office shall be counted first and, if one of the candidates shall have obtained a greater number of such votes than the combined totals of the other candidates, that candidate shall be declared elected. In the event of no candidate for a given office thus receiving a majority vote on the first count, the "second choice" votes on the ballots of the candidate receiving the fewest number of "first choice" votes shall be added to the first choice votes of the remaining candidates. In case the ballot contained more than three nominations, this process shall be repeated, if necessary, until one candidate has received a majority of the votes.

(g) A member privileged to vote is any regular, student, life, or charter member.

(h) In the event of an Annual Meeting not being held, the officers shall hold office for a second year. If, for a second year, no Annual Meeting is held, the Nominating Committee shall nominate a slate of officers for the ensuing year.

*ARTICLE VII

Meetings

Section 1.—Unless the Council deems it inexpedient so to do, an Annual Meeting shall be held at such time and place as it may select. Additional meetings may be arranged by the Council at its discretion.

Section 2.—Regional meetings may be called by the Regional Representatives. A copy of the minutes of such meetings, or a condensation of the same, shall be forwarded to the Secretary-Treasurer, to be dealt with at his discretion.

ARTICLE VIII

Quorum of Council

Three shall constitute a quorum of the Council for the transaction of business.

ARTICLE IX

Committees

Committees, whether special or standing, may be appointed by the Council at any time between Annual Meetings, or at an Annual Meeting.

*Amendments.

*ARTICLE X

Council Meetings

The Council shall meet, if possible, at least once each year, but may, however, be called together by the President if he deems it necessary.

ARTICLE XI

The Society may become affiliated with any other society providing such affiliation is authorized by majority vote of all members in good standing.

*ARTICLE XII

Publication of Proceedings

There shall be published each year the Proceedings of The Canadian Phytopathological Society, unless at the discretion of the Council it is deemed inexpedient.

*ARTICLE XIII

The books of the Society shall be audited each year by two auditors appointed by the President at the first business session of the Annual Meeting.

*ARTICLE XIV

Section 1.—This Constitution may be amended providing each amendment is approved by three-quarters of the members voting thereon and providing that at least 50 per cent. of all the members have returned ballots. Such vote shall be taken by mail ballot, following a notice of motion and discussion at an Annual Meeting. Copies of such notices of motion must be mailed by the Secretary to each member at least two weeks previous to the date of the Annual Meeting.

Section 2.—All amendments to this Constitution shall be published in the Proceedings of the Society.

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*Amendments.

Note.—The amended draft of the Constitution, given above, was approved by more than seventy-five per cent. of the members of the Society, in a ballot conducted in November, 1945.

MINUTES OF THE THIRTEENTH ANNUAL MEETING HELD AT MACDONALD COLLEGE, QUEBEC JUNE 24 to 27, 1946

Business Session: June 24, 1.30 p.m.

The meeting opened with Dr. L. W. Koch in the chair and nineteen members present.

First, a minute of silence was observed in memory of Gordon A. Scott, recently deceased.

This was followed by the President's opening remarks.

The minutes of the 1945 meetings were then read and adopted on a motion by R. C. Russell and T. Johnson.

The Secretary-treasurer read his report and financial statement for the society year 1945-46.

Moved by R. C. Russell and seconded by J. W. Groves that the report of the Secretary-treasurer be accepted. Carried.

Arising out of the discussion of the above-mentioned report, it was moved by R. S. Willison, and seconded by I. L. Conners, that the fee for the coming year be raised and that the amount be set by a motion to be brought in at the final business session. Carried.

It was moved by F. L. Drayton and seconded by I. L. Conners that a memorial tribute to the late G. A. Scott be prepared for publication in the next issue of our proceedings, and that a copy of it be sent to Mrs. Scott. Carried.

The reports of the various standing committees were then heard. The report of the Editorial Committee was presented by R. S. Willison and adopted on a motion by R. S. Willison and T. Johnson. Dr. Willison also moved, and this was seconded by A. A. Hildebrand, that a list of the papers published by our members between June 1, 1944, and May 31, 1946, be included in the next issue of the proceedings of this society. Carried.

L. W. Koch read the report of the War Emergency Committee, and this report was accepted on a motion by L. W. Koch and H. N. Racicot. It was then moved by F. L. Drayton and seconded by T. Johnson, that the War Emergency Committee be disbanded. Carried.

It was moved by D. B. O. Savile and seconded by J. G. Coulson, that the new regional representatives of the society be the following: Walter Jones, G. E. Woolliams, M. W. Cormack, T. C. Vanterpool, W. A. F. Hagborg, A. A. Hildebrand, R. A. Ludwig, L. T. Richardson, Elzéar Campagna, J. L. Howatt, G. W. Ayers, and K. A. Harrison. Carried.

It was moved by I. L. Conners, and seconded by R. S. Willison, that various specific activities be suggested to the regional representatives by the executive. Carried.

The report of last year's nominating committee, submitted by T. C. Vanterpool, was read by the Secretary-treasurer. It was moved by R. C. Russell, and seconded by F. L. Drayton, that the report of this committee be adopted. Carried.

The custodian's report on the library and records of the society was presented by T. Johnson. Its adoption was moved by T. Johnson and seconded by F. L. Drayton.

It was moved by F. L. Drayton and seconded by R. A. Ludwig, that the Secretary appeal to the Librarian of the Dominion Department of Agriculture to send reprints of the contributions of our members in the Division of Botany and Plant Pathology to our Custodian at the end of the year and that the Secretary ask our university members to send in their reprints to the Custodian. Carried.

It was moved by I. L. Conners and seconded by R. S. Willison, that the records of the Society be kept at Winnipeg. Carried.

It was further moved by R. S. Willison and seconded by R. A. Ludwig, that T. Johnson continue to act as custodian during the coming year (1946-47). Carried.

L. W. Koch then read the report of the Public Relations Committee submitted by D. L. Bailey. Mimeographed copies of the main part of this report were distributed at the meeting. No action was taken on this report at the time, but it was agreed that it should be reconsidered at the final business session.

F. L. Drayton agreed to approach the head of the government news article service with a view to getting his consent to the publication of one news article per year by a representative of our Society in each region, without its having to pass through the hands of the Publicity and Extension Division. He also suggested that certain of our members might visit local universities and discuss the prospects of employment in our division with the students, and offered to prepare a memo for their guidance.

R. S. Willison suggested that D. L. Bailey's report be made available to the regional groups.

I. L. Conners gave a verbal report for the Common Names Committee. He stated that a revised check list was nearing completion, that a fungus index was incorporated in the list, and

that he had hopes of seeing the revised edition printed. He also suggested that it might prove helpful if our Resolutions Committee would express a desire to have it printed.

The following committees were then formed:

Resolutions: R. S. Willison and F. L. Godbout.
Publicity: D. B. O. Savile, R. A. Ludwig, and J. G. Coulson.
Auditors: B. J. Sallans and P. M. Simmonds.
Nominating: L. W. Koch, T. C. Vanterpool, F. L. Drayton, P. M. Simmonds and J. E. Jacques.

Also, T. Johnson, F. L. Drayton and J. G. Coulson were appointed as a committee to report to the final Agricultural Institute of Canada meeting, our views concerning the organization of agricultural research in Canada, and on the matter of affiliation with the A.I.C.

Moved by I. L. Conners and seconded by F. L. Drayton, that an honorarium of fifteen dollars be presented to Miss Sadie M. Anderson, together with our sincere thanks, for stenographic services rendered to our Society during the year 1945-46. Carried.

The matter of co-operation with the American Phytopathological Society in exchanging information on new plant diseases and new methods was next considered. Dr. Craigie's letter and part of the accompanying documents were read. In view of Dr. Craigie's expressed opinion that Canadian reports to the proposed international committee should be censored by himself and Dr. Neatby, as Director of Science Services, it was decided that there was no point in our Society taking any action on the matter.

The question of affiliation with the Agricultural Institute of Canada was then discussed. Mr. Racicot stated that in his opinion we should have affiliation with either the American Phytopathological Society or else with the Agricultural Institute of Canada, or better still, form a new Canadian Botanical Society. Dr. Willison recommended affiliation with the A.I.C. and closer co-operation with that body. After some further discussion it was left to Dr. Johnson's committee to express the general feeling of the meeting on the subject of affiliation with the A.I.C.

Business Session: June 26, 1.30 p.m.

About twenty-five members were in attendance.

The guest speaker, Dr. Rene Pomerleau, was introduced by Dr. J. Emile Jacques.

Dr. Pomerleau presented an invitation paper on the Dutch Elm Disease in the Province of Quebec. This most interesting paper was well illustrated with lantern slides and evoked considerable commendation and discussion. At its conclusion, Dr. Drayton moved a hearty vote of thanks to our guest speaker.

After the presentation of the above-mentioned paper the final business session was held.

I. L. Conners brought greetings to our Society from the Quebec Society for the Protection of Plants. These were received with considerable applause. He reported that he had attended their meetings held at Quebec in the month of May and suggested that it would be a good thing to make a regular practice of sending a few of our men from Ontario and the Maritimes to their annual meetings.

After some discussion concerning the amount of our annual membership fee in the immediate future, it was moved by I. L. Conners, and seconded by D. B. O. Savile, that our membership fee for the coming year be increased to two dollars. Carried.

The Publicity Committee's report was then presented by D. B. O. Savile. He stated that a news item covering our convention had been prepared for the press. It was moved by Dr. Savile and seconded by J. E. Jacques that the report be adopted. Carried.

The report of the Resolutions Committee was presented by R. S. Willison, and adopted on a motion by R. S. Willison, seconded by D. B. O. Savile.

It was moved by F. L. Drayton and seconded by R. A. Ludwig, that those who functioned on the Editorial Committee last year be asked to officiate in the same capacity for the coming year. Carried.

The report of the Public Relations Committee was again discussed. It was decided to pass it on to the regional groups for further consideration.

It was moved by R. S. Willison and seconded by I. L. Conners, that G. A. Ledingham form a committee to consider the possibility of forming a society of Canadian micro-biologists, and that he keep the executive of the C. P. S. informed of the progress of the work of his committee.

It was moved by R. S. Willison and seconded by T. Johnson, that the regional representatives contact all forest pathologists and other eligible workers with a view to persuading them to join our Society. Carried.

Applications for membership from the following persons were read and accepted on a motion by R. A. Ludwig and J. E. Jacques:

J. Bocking
J. J. Goodman
D. B. Robinson
and K. R. Rockwell.

It was moved by F. L. Godbout and seconded by R. A. Ludwig, that a list of all members be compiled by the Secretary and sent out to our members by next fall. Carried.

A suggestion by P. M. Simmonds that it might be well for our Society to raise funds to finance the publication of monographs, etc., written by our members, was discussed. The meeting decided against the proposal for several reasons. It was felt that the publication of such material was the responsibility of the institutions employing the authors and that very little difficulty had been experienced in the past in getting such works published. Also, the cost involved would be beyond the resources of our Society.

Dr. Johnson then read his committee's report on Co-ordination of Research in Canada. A paragraph was added, at the suggestion of the meeting. The report was then adopted on a motion by Drs. Johnson and Drayton.

It was moved by F. L. Drayton and seconded by G. A. Ledingham that Dr. D. L. Bailey be asked to serve again as chairman of the Public Relations Committee with powers to add to his committee as he sees fit, and that if he is unable to accept the responsibility that the president appoint a substitute. Carried.

The Secretary was instructed to thank Dr. Bailey for his report, to offer our condolences for his recent illness, and to inform him regarding the reaction of this meeting to his report.

The matter of affiliation with the A.I.C. was then discussed. It was the general feeling of the meeting that it would be desirable to continue our affiliation with that body and that we would welcome a clarification as to what precisely is involved in affiliation with the A.I.C.; that we do not favor changing our status to that of a subject group; and that we would be willing to bear our fair share of the convention expenses. The task of making final decisions regarding affiliation was left to the incoming executive.

The meeting then adjourned.

RESOLUTIONS

1. Whereas we, the members of the Canadian Phytopathological Society, on the occasion of the Convention of the Agricultural Institute of Canada from June 24 to 27, 1946, have enjoyed the many courtesies, facilities and privileges extended to us by the authorities of Macdonald College, be it resolved that we convey to the Principal and his staff, our warmest thanks and appreciation for their many kindnesses.
2. Whereas, we the members of the Canadian Phytopathological Society during our visit to Ste. Anne de Bellevue, June 24 to 27, 1946, on the occasion of our thirteenth annual meeting, have enjoyed the generous hospitality of the Government of the Province of Quebec; be it resolved that we acknowledge our appreciation with many thanks.
3. Be it resolved that we, the members of the Canadian Phytopathological Society, assembled at the Thirteenth Annual Meeting of the Society at Macdonald College in June, 1946, express our gratitude to those gentlemen who have presented papers, and particularly to Dr. R. Pomerleau for his exceedingly interesting address.
4. Whereas the committees of the Agricultural Institute of Canada in charge of arrangements for the Convention at Macdonald College, June 24 to 27, 1946, have so well provided the services and arrangements which made possible the Thirteenth Annual Meeting of the Canadian Phytopathological Society, and in addition have contributed so much to our comfort and pleasure; be it resolved that we extend our sincere appreciation to the membership of these committees.
5. Whereas a new check list of the common names of plant diseases in Canada has been prepared and whereas the usefulness of this list would be greatly enhanced by its prompt publication in printed form; be it resolved that the Canadian Phytopathological Society, assembled at its Thirteenth Annual Meeting, express to the Division of Botany and Plant Pathology, its desire that the check list be printed in the near future if at all possible.
6. Whereas the growing of vegetable, fruit and industrial crops in South-Western Quebec has become highly important and is constantly increasing; whereas destructive diseases have increased with the development of such cultures; be it resolved that the Canadian Phytopathological Society at its Thirteenth Session held at Macdonald College, respectfully request the Division of Botany and Plant Pathology of the Dominion Department of Agriculture to pay closer attention to the problems involved, and start as soon as possible rsearch work on some of the problems to be solved.

REPORT OF THE EDITORIAL COMMITTEE

Some nineteen papers were read before the Society at its Twelfth Annual Meeting, held in Saskatoon in 1945. Of these the two invitation papers by Drs. D. L. Bailey and K. W. Neatby were to be published in full in other journals. The remaining seventeen were submitted in abstract form for publication in the Proceedings of the Society. The revised constitution was also included in the Thirteenth Proceedings in accordance with the wishes expressed by the members at the Saskatoon meeting. Most of the material came to the hands of the committee in January, 1946, but some articles were delayed until February. It is respectfully suggested that the lapse of six months constitutes too long a delay between the reading of papers and the submission of abstracts. The committee, therefore, would urge that abstracts be prepared along with the paper and placed in the hands of the secretary at the annual meeting at which the paper is read. Such an arrangement would not only permit the early publication of proceedings but would simplify matters for the authors themselves.

It will be noted that the list of papers published by members during the Society year ending June, 1945, was omitted from the proceedings. For this omission, the editorial committee takes full responsibility, on the grounds that the compilation of the list this year would have delayed publication still further and that the publication of the revised constitution had loaded the proceedings to capacity. There is also some criticism that the lists are of doubtful value and seldom complete. An expression of opinion on this matter is requested for the future guidance of the committee. If the lists are to be continued, steps to assemble the necessary information should be taken as soon as possible after the annual meeting.

The Thirteenth Proceedings were published in Saskatoon at the Society's expense. One hundred and fifty copies were printed, of which eighty-four copies were distributed. The secretary, Dr. R. C. Russell, undertook the task of publication and distribution, and to him the committee wishes to express its appreciation. A balance of forty-three copies is at present in reserve.

R. S. WILLISON, *Chairman*
THORVALDUR JOHNSON
B. J. SALLANS

REPORT OF THE WAR EMERGENCY COMMITTEE 1945-1946

During the past year no regional meetings of our Society were held. The most effective effort of the War Emergency Committee consisted in its co-ordinated efforts with the Public Relations Committee in connection with Dr. D. L. Bailey's paper, "Canadian Plant Pathology in Retrospect and Prospect," which was presented by invitation at the 1945 annual meeting and published in the September, 1945, issue of the Agricultural Institute Review. The work of this committee centred around the ordering of reprints and arranging for their distribution. Two hundred reprints of the paper were ordered and each regional representative was responsible for the preparation of a carefully-prepared mailing list of all persons within his region who were to receive reprints. All efforts towards distribution of reprints were co-ordinated with those of the author to be as effective as possible.

L. W. KOCH.

REPORT OF THE NOMINATING COMMITTEE FOR 1946

The committee chairman, T. C. Vanterpool, met with I. L. Conners and F. J. Greaney on February 20, in Winnipeg, and considered possible nominees for the various vacancies on the Council. The recommendations and views of the other members of the committee, J. F. Hockey and H. R. McLarty, were obtained by correspondence.

The committee submits the following slate of officers for the year 1946-47:

President	T. Johnson
Vice-President	G. H. Berkeley
	R. R. Hurst
Secretary-Treasurer	R. C. Russell (retires in 1947).
Councillors	L. W. Koch
	J. D. MacLachlan

Apart from customary qualifications when considering possible nominees, the committee drew up some additional "guiding rules" with the idea of maintaining a certain degree of continuity in the method of selecting nominees. These suggestions are as follows:

1. It is highly desirable for the President to have had previous experience on the Council for at least one year.
2. That at least one member of the Council be outside the employ of the Federal Government.
3. That the location of the next annual meeting, that is, whether in Western or Eastern Canada, be borne in mind when nominees are considered, and especially the nominee for President.

Respectfully submitted by the Nominating Committee.

I. L. CONNERS
F. J. GREANEY
J. F. HOCKEY
H. R. McLARTY
T. C. VANTERPOOL (*Chairman*)

CUSTODIAN'S REPORT

REPORT ON THE LIBRARY AND RECORDS OF THE SOCIETY

At the 1945 (Saskatoon) meeting of the Canadian Phytopathological Society I was appointed custodian of the records of the Society for the year 1945-1946, and was requested to prepare a report for the next meeting as to future policy in regard to the library and other records of the Society.

Publications on hand, July, 1945, were found to consist of:

1. Proceedings Numbers 1 to 12. Some Proceedings being limited to a few copies.
2. A number of copies of the Check List of Diseases of Economic plants in Canada.
3. Reprints of about 130 published papers. To this number, several reprints have been added during the current year.

Other records of the Society on hand consist of correspondence dating back to 1938 and detailed minutes, in typed form, of some of the earlier meetings of the Society and Council.

The reprints were assembled, indexed, as to author, and filed by number.

As to future policy, it seems advisable to keep the records of the Society in one place, preferably either at Winnipeg or at Ottawa. It is suggested that some member of the Society located at one or the other of these places be appointed permanent custodian.

It is further suggested that it would be desirable to include in the records group photographs taken at past meetings, if any such are obtainable and, in general, any photographs that, in the future, would be of interest in connection with the history of the Society or of Phytopathology in Canada.

T. JOHNSON.

PUBLICITY AND PUBLIC RELATIONS COMMITTEE

Two suggestions I had hoped to make were (1) that each local be asked to accept the responsibility for preparing and having published in whatever journal they considered most appropriate at least one article dealing with some phase of plant pathological research in the region concerned, and (2) that every possible publicity be given to (a) the present inadequacy of trained pathologists and the researches which are held in abeyance thereby; (b) every case of "gross inequality and injustice" not now adjusted; (c) every case of a Canadian pathologist leaving the Federal services for a better paid job elsewhere. At the same time I should have liked to hear discussed (1) the problem of how grower interest can be controlled and directed so it does not result in sheer frustration through undesirable multiplication of regional laboratories; and (2) whether we should not, as a society, send a brief to the Director of Science Service urging that any new laboratories which are founded should be plant science units in which are or may be represented all the specialties which contribute to the production of healthy plants and the permanence of agriculture.

D. L. BAILEY.

RESEARCH AND ITS APPLICATION TO CANADIAN AGRICULTURE

The organization of agricultural research in Canada has been given careful consideration in the Department of Agriculture and in the National Research Council. Moreover, much carefully planned research is carried out by the various agricultural colleges.

It is the opinion of the Canadian Phytopathological Society that such weaknesses as exist in the fabric of agricultural research in Canada lie, not so much in the actual organization of research activities, as in the application of the results of research to agricultural practice. It has been emphasized by the Canadian Phytopathological Society at previous meetings that there is frequently a serious lag in the passing of the results of research to growers—one of the chief obstacles being faulty co-ordination between research workers, who are frequently in the employ of the Federal Government, and extension workers, who are for the most part in the employ of provincial governments. The Canadian Phytopathological Society re-emphasizes the necessity of improving this co-ordination.

Relating to the actual organization of research in the institutions therein concerned, it is the opinion of the Canadian Phytopathological Society that careful thought should be given by the authorities to the co-ordination of the activities of the various branches and divisions concerned with research. It is easy to conceive of a research problem that for its successful solution requires concerted effort. If such a problem came within the sphere of activity of the Department of Agriculture, its solution might require the institution of a laboratory in which workers of several divisions co-operate. For its successful functioning such a laboratory might require a director who would necessarily belong to one division or another of those taking part in the work. Harmony between workers and between divisions is essential. It would be the duty of the administrative officers concerned to work out ways and means of achieving harmony and unity of effort. Thinking should be directed towards solving the problem, and the desire for divisional prestige should not be allowed to interfere in any way with this object.

As an example of a field of research in which such concerted effort might yield fruitful results, we might take the problem of virus research. A virus research laboratory might require the services of plant pathologists, entomologists, plant physiologists and chemists. Such a composite laboratory would probably involve administrative difficulties which, however, should not be insuperable.

In certain special fields, it was felt that it might be advisable to devise organizations that would act in an advisory capacity. One such field is bionomics. Most research workers are not competent statisticians and would benefit by qualified advice both in the planning of experiments and in the analysis of experimental results. It seems desirable that such services should be made readily available to scientific workers.

As a final item, the Canadian Phytopathological Society is of the opinion that Canadian scientific workers should be given greater opportunities than in the past of first-hand contact with scientific institutions in other countries. It is only by adequate contacts of this kind that science in Canada can keep abreast of that in other industrially and scientifically advanced countries. This might be achieved by an arrangement comparable to the sabbatical leave in universities or official transfer of problems.

THORVALDUR JOHNSON
F. L. DRAYTON
J. G. COULSON

REPORT OF THE SECRETARY-TREASURER

Mr. President and Fellow Members:

I take pleasure in submitting herewith the report of the Secretary-Treasurer for the year ending May 31, 1946.

The last annual meeting of our Society was held at the University of Saskatchewan in the City of Saskatoon, June 25-28, 1945. Two business sessions were held; two invitation papers were presented; and seventeen scientific articles were presented and discussed briefly—all of which is mentioned in the latest proceedings published in March of this year. In addition, a revision of our constitution, prepared by a special committee under Dr. D. L. Bailey, was read, discussed, and adopted by the meeting. Since then it has been endorsed by a vote of the entire membership and has been embodied in the proceedings. Extra copies are on hand for distribution to new members.

The two invitation papers were given on the afternoon of the second day of the convention. Dr. D. L. Bailey dealt with the subject of Canadian Plant Pathology in Retrospect and Prospect in such a thorough and able manner that it was decided to distribute reprints of his article, through our members, to influential people interested in the advancement of agricultural research throughout Canada. Dr. K. W. Neatby delivered a fine paper on the Interrelation of Plant Pathology

and Plant Breeding in the Production of Disease-resistant Varieties. It was very well received and it was expected that this paper would be published in the Agricultural Institute Review during the year, but through some misunderstanding this has not been done.

In accordance with the provisions of the new constitution, nominations to the positions to be filled on the executive and council were made by a nominating committee headed by T. C. Vanterpool as chairman. The report of this committee has already been presented. The only position to be voted on was that of vice-president. No additional nominations were received from the membership. Ballots were sent out on June 1, 1946. Only 42 ballots were returned. Drs. Hildebrand and Johnson, and the secretary, acted as scrutineers. Mr. R. R. Hurst was elected to fill the position of vice-president for the coming year.

The total membership at the present time stands at eighty-two. Two members have resigned because of superannuation and a change of vocation; two have been dropped from the roll for non-payment of fees; and one, Gordon A. Scott, has been called from our ranks by death. One application for admittance into our Society has been received. No membership committee has been in operation during the past year, and it is quite possible that some eligible men are present at the various Universities and laboratories across Canada who should be contacted and induced to join now. The Secretary would be pleased if the members would put him in touch with such prospective members.

FINANCES

The attached financial statement shows that our present revenue is not sufficient to take care of our expenses. As instructed at the last annual meeting the Secretary circulated a brief memo this spring on the subject of fees. The gist of this memo is that our membership fee needs to be raised by about 50% to take care of our usual current expenses unless we break into our reserve represented by our $500 Victory Bond. If we should decide to spend money on any new activities, the fees will have to be raised correspondingly or the money will have to be secured in some other way. Our credit balance at the end of May was $19.88, in addition to the $500 invested in the bond.

This report is respectfully submitted by your Secretary-Treasurer.

R. C. RUSSELL.

FINANCIAL STATEMENT

CANADIAN PHYTOPATHOLOGICAL SOCIETY

June 1st, 1945 to May 31st, 1946

Revenue:

Balance Brought Forward			$ 62.51
Fees:			
1944-1945	$ 1.00		
1945-1946	76.00		
Prepaid	13.00		
		$ 90.00	
Premium on U.S. Currency		.60	
Interest on Bond		15.00	
Sale of Proceedings		1.00	
		$106.60	169.11

Expenditure:

Stenographic Service (1944-45)	15.00	
Reprints: Dr. Bailey's Article	25.15	
Express Charges on Reprints	1.50	
Printing of Proceedings No. 13	95.84	
Stamps	11.59	
Bank Exchange	.15	
	$149.23	
Balance (in Bank) May 31st, 1946		$ 19.88

Additional Asset:

Dominion of Canada 3% Victory Bond (Series K8Z32643)	$500.00

Audited and found correct,

(*Signed*) B. J. SALLANS

P. M. SIMMONDS

June 20, 1946.

ABSTRACTS OF PAPERS PRESENTED AT THE THIRTEENTH ANNUAL MEETING OF THE CANADIAN PHYTOPATHOLOGICAL SOCIETY

THE THEORIES CONCERNING VARIABILITY IN FUNGI

J. J. MILLER, Dominion Laboratory of Plant Pathology, Harrow, Ont.

The type of variation to be discussed is that due to the appearance of actual hereditary differences between different representatives or samples of the fungi in question. Such differences are considered to arise through (*a*) hybridization, leading to the recombination of the genetic material of the parents, and (*b*) mutation, or the appearance of sudden changes in genotype not due to recombination of mendelian factors. The "dual phenomenon" theory of Hansen attempts to account for much of the variability of imperfect fungi by assuming variants to arise through the segregating out of genetically different nuclei from multinucleate mycelia. Though this may have some applicability, it fails to explain the appearance of variants among the progeny of uninucleate, haploid conidia, and these must be attributed to mutation. "Adaptive variation" is not in itself a mechanism for the production of new types, but should be regarded, rather, as a consequence of the appearance through mutation of adapted types.

CULTURAL VARIATION IN FUSARIUM

J. J. MILLER, Dominion Laboratory of Plant Pathology, St. Catherines, Ont.

Variant types appearing in cultures of *Fusarium* were concluded to have arisen through mutation. Many of these mutants were able to displace the original or wild types in culture, a process that was termed "cultural degradation," and this was favored by transferring. Since the mutants were consistently found to be less virulent than the wild types from which they arose, they obviously represent a danger to the phytopathologist. Care should be taken to avoid cultural degradation by maintaining the wild types in the pure state. In view of the fact that the mutants show a wide range of morphological diversity, it is evident that they merit the attention of the mycologist. However, it was observed that the range of variability among initial isolates was much narrower than that displayed in culture through mutation. It seems reasonable to conclude, therefore, that the taxonomy will be rendered simpler, and less prone to confusion, if only the naturally-occurring forms are considered in species descriptions.

VARIATIONS IN BOTRYTIS CINEREA

J. WALTON GROVES, Dominion Laboratory of Plant Pathology, Ottawa, Ont.

Analysis of one hundred and seventy-seven single-ascospore cultures made in 1938 from the apothecia of nine different isolates of *Botrytis cinerea* showed that eighteen produced only white mycelium, no conidia or sclerotia, seventeen produced abundant macroconidia but no sclerotia, and the remaining one hundred and forty-two were somewhat intermediate producing some sclerotia and some macroconidia. Many of the cultures have been discarded but of those remaining, three were originally of the white mycelial type and two were of the conidial type. These are still as originally described. Fifty-nine of the original intermediate type remain, and of these, ten are now like the white mycelial type, two like the conidial type and the remainder are still intermediate. In the light of the dual phenomenon hypothesis the mycelial types might be interpreted as M types, the conidial types as C types and the rest as MC types. However, since these all arose from single ascospores with no possibility of heterocaryosis being a factor, doubt is cast on the validity of the dual phenomenon hypothesis as an explanation of variation in *B. cinerea*.

RECENT CHANGES IN THE PHYSIOLOGIC RACES OF CERTAIN OF THE CEREAL RUSTS

T. JOHNSON, Dominion Laboratory of Plant Pathology, Winnipeg, Man.

In the last decade, considerable changes have taken place in the physiologic races of some of the cereal rusts. In wheat stem rust (*Puccinia graminis Tritici*), race 56, which gained wide prevalence about 1934, is still the predominant race. Race 17, which was collected rarely for a number of years prior to 1940, became common in that year and still remains so. Race 15B, which has been collected a number of times in the United States, has not been found in Canada. A further spread of this race would be a matter of consequence owing to its ability to attack varieties such as Renown, Regent, and Thatcher.

In leaf rust of wheat (*Puccinia triticina*), there have become prevalent, in the last two or three years, strains that have overcome the adult-plant resistance of Renown, Regent, and other wheats of similar origin. The most widely distributed of these strains is race 128 which bears a close resemblance to race 29 but differs by its ability to attack the wheats mentioned above. Other strains capable of attacking these wheats include biotypes of races 5 and 15 which were present in Canada in 1945.

In oat stem rust (*P. graminis Avenae*), races other than 1, 2, and 5, were rarely found during the period 1921-1942. The problem of breeding for resistance to oat stem rust was chiefly a matter of producing varieties resistant to races 1, 2, and 5. This object was attained by the production of Anthony and Vanguard. Occasionally, however, other races were collected such as race 7 which attacked Anthony, race 8 which attacked Vanguard, and race 6 which attacked both varieties. In 1943, race 8 became rather common and, as a consequence, the new resistant oat varieties (Vanguard and Ajax, in Canada; Vicland, Tama, etc., in the United States) bore considerable stem rust. Since then, race 8 has become so common that these varieties can no longer be regarded as resistant. There is, at present, no evidence that races 6 or 7 are gaining in prevalence; but, if either of these became common, resistance of the type possessed by Anthony would be of no value.

Fifteen races of crown rust (*P. coronata Avenae*), have been collected in Canada. The distribution of these races has not been uniform throughout the country, and, moreover, there have been changes from time to time in their prevalence. In Eastern Canada, races 2 and 3 were for a number of years the predominant races. The resistance shown by the variety Erban in Eastern Canada was due to the fact that it develops adult-plant resistance to these two races. When, in 1945, race 5 gained wide prevalence, Erban reacted as a susceptible variety. The susceptibility shown by Erban in the prairie provinces is due to the fact that it does not develop adult-plant resistance to races 1 and 4 which have been common in that area.

The reasons for the changes in the distribution of physiologic races are only partly clear. In stem rust and crown rust, the alternate hosts may play an important part. There is some evidence connecting the origin of race 56 of wheat stem rust and race 10 of oat stem rust with the barberry; and it is known that a much greater variety of races occurs in uredial cultures derived from aecia on barberry than in uredial cultures gathered from grain fields. Mutation affecting pathogenicity may be an important factor in the origination of new strains. When new pathogenic strains have gained a certain amount of distribution, varieties of cereals that are commonly grown will select out those strains that happen to be pathogenic to them. The greater the increase in the number of urediospores of a strain, the greater is the possibility of its overwintering. Given a certain distribution, a certain amount of overwintering, and susceptible hosts, a new strain of rust is well on its way to permanent establishment.

ABNORMAL COLOR IN SCLEROTIA OF ERGOT, CLAVICEPS PURPUREA (FRIES) TUL.

A. M. BROWN, Dominion Laboratory of Plant Pathology, Winnipeg, Man.

On July 27, 1943, three abnormally colored (pale buff) ergot sclerotia (*Claviceps purpurea* (Fries) Tul.) were collected in the field from winter rye and a tissue culture was made from one of them. Different lots of rye plants growing in the greenhouse were inoculated with this culture in 1944 and 1945, and abnormally colored sclerotia were consistently produced on them. Some of these sclerotia were stratified in moist sand in August, 1945, and were stored in a refrigerator at a temperature slightly above freezing. They were taken from the refrigerator to room temperature on October 11 and, ten days later, several germinating sclerotia liberated ascospores.

Single-ascospore cultures were obtained by suspending germinating sclerotia for a short time over agar plates. When the ascospores germinated they were readily isolated with the aid of a wide-field microscope. Altogether ten single-ascospore cultures were secured, each one from a separate sclerotium.

These single-ascospore cultures were used to inoculate rye plants in the greenhouse. The plants inoculated with three of these cultures produced abnormally colored sclerotia, and those inoculated with the remaining seven cultures produced normally colored sclerotia. These results indicate that the abnormally colored ergot, when completing its life cycle, segregated for color.

A PRACTICAL TECHNIQUE FOR MAINTAINING PURE CULTURES OF ECONOMIC FUNGI

J. J. MILLER, L. W. KOCH, and A. A. HILDEBRAND
Dominion Laboratory of Plant Pathology, Harrow, Ont.

A satisfactory cultural technique must not only keep the organisms viable, but it must also be such that the original isolates do not become mixed with, or displaced by, mutants. Four cultural techniques were compared in this regard, employing four organisms. On potato dextrose agar slants, transferred five times in nine months, all four organisms, *Thielaviopsis basicola* (Berk.) Ferraris, *Septoria Glycines* Hemmi, *Penicillium notatum* Westling, and the muskmelon *Fusarium* remained viable, but mutations were frequent and to a large extent displaced the original types. Similar treatment with soil infusion agar slants gave similar results except in the case of *Penicillium* which appeared stable on this medium. In tubes of moist sterilized soil transferred to fresh tubes five times in nine months, very few mutations appeared. *Thielaviopsis* failed to remain viable under this treatment. In similar tubes of soil that were not transferred neither *Thielaviopsis* nor *Septoria* remained viable. *Penicillium* and *Fusarium* were still viable after nine months in dry soil, and the tubes yielded no mutants. Thus it seems evident that with *Penicillium* and *Fusarium*, and

possibly also with *Septoria*, the practise of maintaining cultures in tubes of moist sterilized soil that are allowed to become dry after inoculation, and transferred infrequently, should prove valuable. This technique may be especially practical for branch laboratories since no expensive equipment is required.

METHODS OF PRESERVATION OF FUNGUS CULTURES

G. A. LEDINGHAM, National Research Council, Ottawa, Ont.

Three methods are commonly used for the preservation of fungus cultures. Most laboratories keep their cultures in the viable state on agar media, transferring frequently enough to avoid desiccation or death of the culture. Some laboratories also carry stock cultures of their fungi on soil. After a short period of growth the soil is allowed to dry out and the spores of most species remain viable for a long period of time.

Both of the above methods require constant care in order to prevent contamination by mites and other micro-organisms. Furthermore there is always a possibility that the culture may produce natural variants and subsequent transfers will then differ in their pathogenicity of biochemical properties. These dangers may be avoided by the use of the "lyophile" method of preservation which has been found satisfactory for most small spored fungi, yeasts and bacteria.

A heavy spore suspension of the culture is made in sterile 12% aqueous solution of Difco Skim Milk Powder. Using a sterile Pasteur pipette 1c.c. aliquots of this suspension are transferred to sterile pyrex ampoules. The ampoules are then "quick frozen" in an acetone dry ice bath and transferred to a chilled vacuum desicator which is evacuated overnight. The tubes are next evacuated on a manifold and cut off with a hand torch with a cross fire attachment. The dried culture then consists of a small water soluble milk pellet sealed in glass under vacuum. After labelling, dozens of these ampoules may be filed in a small cabinet. Many species remain viable for years, but further information on longevity of the moulds is required before definite recommendations can be made as to probable life of dried cultures.

THE DUTCH ELM DISEASE IN CANADA (1)

By RENE POMERLEAU (2)

The discovery of the Dutch Elm disease in Europe and especially its introduction and establishment in the United States drew the attention of Canadian plant pathologists on this dreadful menace of our best shade and ornamental tree. The occurrence of this disease in Canada was disclosed in August, 1944, when the author found at St. Ours, in Richelieu County, Quebec, several trees showing the characteristic symptoms: wilting of the foliage and streaking of the sapwood. The presence of the causal organism, *Ceratostomella ulmi* (Schwarz) Buis, in these trees was ascertained by cultures of twig samples made at the laboratory of forest pathology in Quebec city and confirmed later by the U.S. Dutch elm disease laboratory of Hoboken, N.J. By a rapid survey made during Fall of the same year, twenty-eight diseased trees were found in four counties around Lake St. Peter.

With the hope that this outbreak was limited to the area already known in 1944, a program of repression was planned on a co-operative basis between the division of forest pathology of the Quebec Department of Lands and Forest and the divisions of plant protection and of botany of the Dominion Department of Agriculture.

With the scope of finding the actual extent and intensity of this disease, a complete survey in the elm range in Eastern Canada was conducted by both agencies during the summer of 1945. Cultures of twig and trunk samples from symptomatic trees were made by the Provincial and Dominion Laboratories of Forest Pathology in Quebec and Ottawa. During this period 18,000 trees were examined and 2,227 sampled in the Province of Quebec. From the 2,125 samples forwarded to Quebec and the 122 cultured in Ottawa, 1,321 were found infected with *C. ulmi*, 365 with *Dothiorella ulmi* Verral & May, 15 with *Verticillium albo-atrum* R. & B. and 318 with miscellaneous fungi, 46 were sterile and 40 were not cultured. Samples from other provinces sent to Ottawa did not have *C. ulmi* in culture.

This first complete survey has shown that at least 24 counties are involved in this outbreak which covers an area of about 7,000 square miles, extending on both sides of the St. Lawrence river between Quebec city and Montreal, and that most of the infected trees are located in four counties around the town of Sorel. The wide gap of more than 200 miles which separates the Canadian outbreak and the one in the United States suggests that no direct connection exists between these two centres of distribution. Although the means of transportation, the place of entrance and the time of the introduction of this parasite are not known, there are some good reasons to believe that contaminated materials were brought from Europe several years ago to the ocean port of Sorel.

(1) Invitation paper.

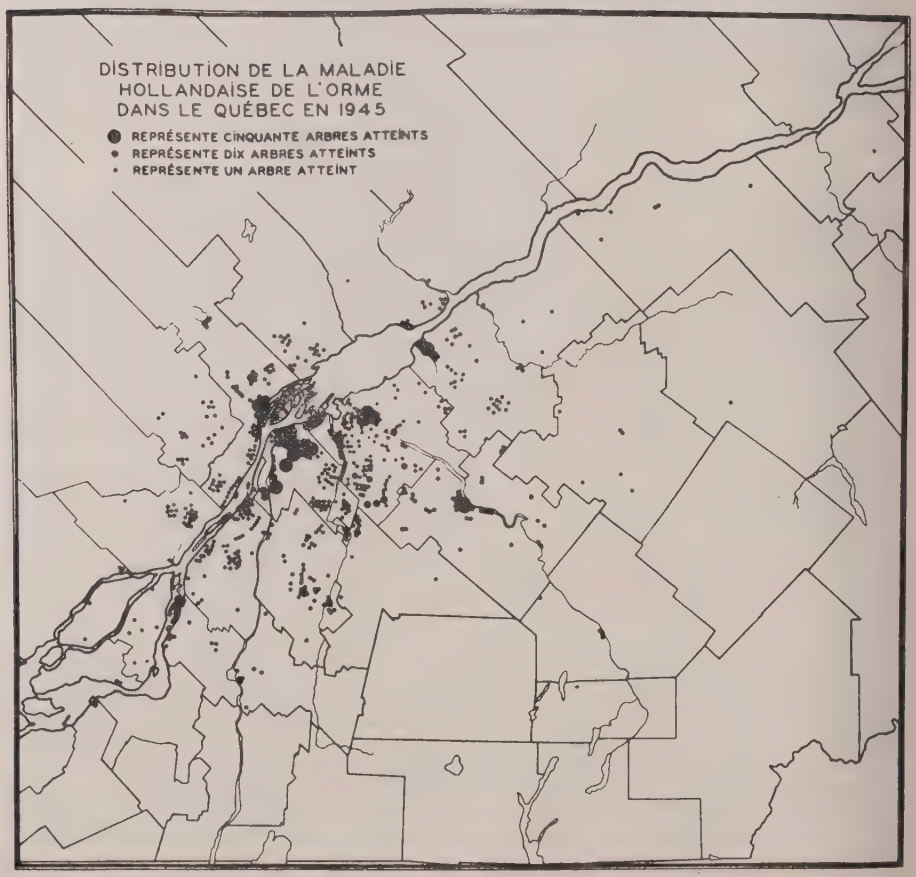
(2) Director of the Provincial Division of Forest Pathology, Quebec.

The only known vector of the disease in the Canadian outbreak is *Hylurgopinus rufipes* Eich, a native elm bark beetle, whereas the european beetle, *Scolytus multistriatus* Marsh, is more frequently associated with the disease in the United States. It seems, however, that the rate of spreading of the fungus is greater here than in sections of the United States where only the native beetle occurs.

Although this disease has been thoroughly investigated abroad and in this continent, the life history of the fungus and the vector in relation with the seasonable activities of the host under our conditions remains to be clarified. Close observation of the spreading of the disease in sample plots as well as pathological entomological research projects will be undertaken this year.

During the first year of intensive survey only the symptomatic trees have been sampled. In order to get a more complete picture of the distribution of this fungus, samples of wood and bark from dead or dying elms with beetle galleries will also be collected in the future outside the known infected area.

With the extent this epidemic disease has already acquired in Canada, the complete eradication of the pathogene does not seem any more feasible. Moreover, no adequate appropriations were available to meet the situation. The removal and disposal of infected trees by owners and municipalities to reduce the spreading of the disease was, therefore, the only control measure to be adopted temporarily. With the joint efforts of the two organizations, this campaign, for the first year, was successful since all the known infected trees were cut down during Fall and Winter.


DISTRIBUTION DE LA MALADIE
HOLLANDAISE DE L'ORME
DANS LE QUÉBEC EN 1945
REPRÉSENTE CINQUANTE ARBRES ATTEINTS
REPRÉSENTE DIX ARBRES ATTEINTS
REPRÉSENTE UN ARBRE ATTEINT

NEMATODE DISEASES OF POTATOES IN CANADA

H. N. RACICOT, Division of Botany and Plant Pathology, Ottawa, Ont.

The root-knot nematode, *Heterodera marioni* (Cornu) Goodey, was found in New Brunswick in 1930 by D. J. MacLeod and reported by A. D. Baker. Although this is the only report of this disease in this host in Canada, there is circumstantial evidence that it could be found in potatoes grown around the larger urban centres, where the nematode is frequently carried from infested greenhouses in soil and plants to gardens and fields. The evidence for this is the frequent occurrence of infected carrots and tomato plants in those areas. This nematode causes pimples on the surface of the tubers. When the population is high enough, it reduces the yield. If it is generally present on Canadian potato farms, as some believe it to be, the crop rotation practised on most of them is keeping the population so low that the disease is not detected.

The potato-rot nematode, *Ditylenchus destructor* Thorne, was reported to have been found in Prince Edward Island potatoes in ship stores in 1931, but a search for it in that province at that time failed to reveal its presence. In November, 1945, it was found at York, and in February, 1946, at Uigg, both in that province, but it is doubtful that the first report had any connection with this occurrence. The only other place where it is known to occur in North America is at Aberdeen, Idaho, where it was found in 1943. This nematode causes, at first, discolored patches on the surface of the tubers which resemble somewhat those caused by late blight. The infections range in size from pin-points, to pimples, to large, necrotic, and sunken lesions. As these increase in size, the tissues are invaded more deeply, and large cracks appear on the surface. All stages of the nematode, from eggs to adults, are to be found at the margin between the necrotic and the healthy tissues. Secondary organisms frequently cause a soft rot of the tubers. Both the male and female adults are worm-shaped. Quarantine zones have been established, surveys instituted, and investigations undertaken to determine the host range of the nematode and means of eradicating it, in Prince Edward Island.

A species of *Aphelenchoides* has been found in potatoes from Prince Edward Island. It has generally been considered to be saprophytic, or weakly parasitic at the most. It is now believed to be definitely parasitic. Further studies are necessary in order to determine the species and how serious it may be.

Although the golden nematode, *Heterodera rostochiensis* Wollenweber, has not been found so far in North America outside of a small area on Long Island, N.Y., a careful watch for this disease should be kept everywhere. Infected plants tend to be stunted, yellowish, and to lack vigor. This is worse in depressions in the fields where the cysts (mature females) are carried by surface water and tend to concentrate. If an infected plant is pulled up carefully, some of the white immature and golden-brown mature cysts will be found adhering to the fibrous roots, while others may be found in the soil. In this species, the mature females are more or less spherical, while in *H. Schachtii* Schmidt, with which it was included until recently, they are lemon or pear shaped.

A HOMOTHALLIC, SHORT-CYCLE STRAIN OF UROMYCES POLYGONI (PERS.) FUCKEL

A. M. BROWN, Dominion Laboratory of Plant Pathology, Winnipeg, Man.

Telial material of *Uromyces Polygoni* (Pers.) Fuckel was collected in October, 1943, on *Polygonum aviculare L.* and was kept in a dry condition in the laboratory during the following winter months. The teliospores germinated in April, 1944, after moistening in water. During May, sporidia were sown on seedling plants of *P. aviculare* and *P. neglectum* Besser. Rust infection (aecia) developed only on *P. aviculare*. In none of the infections arising from sporidia did the sparsely produced, under-developed pycnia exude visible nectar. However, as a precaution against the possible transfer of pycniospores from one infection to another, insects were excluded from the plants.

Observations were made on one hundred and ten isolated and apparently monosporidial infections. Of these, ninety-six produced aecia spontaneously when they were from ten to fourteen days old. Of the others, nine produced uredia instead of aecia, and five produced aecia and uredia. In addition to these infections, twenty compound infections, each originating from two or possibly more sporidia, were selected for observations. Fourteen of these produced aecia in both components simultaneously, two produced uredia in both components, and four produced aecia in one component and uredia in the other one.

Aeciospores and urediospores produced on *P. aviculare* were sown on *P. neglectum* and *P. erectum L.* but, although the inoculations were repeated a number of times, the two last-mentioned species remained rust free.

The strain of *U. Polygoni* investigated is accordingly considered to be homothallic. It produces a few under-developed pycnia. This rust may shorten its life-cycle by omitting aecia. It seems also to have a restricted host range.

THE SPECIES CONCEPT IN THE GENUS ENTYLOMA

D. B. O. SAVILE, Dominion Laboratory of Plant Pathology, Ottawa, Ont.

Careful and complete study of a large number of specimens indicates that considerable faith may be put in a morphological species concept in this genus. The characters found most useful are: minimum and maximum length of spores, minimum spore wall thickness, density of spore distribution in the leaf, and presence or absence of conidia or conidiophores. Average dimensions should be avoided, because they are difficult to determine accurately. The tendency to classify according to host, shown by several students of these smuts, is dangerous because many host genera are attacked by two or more species of *Entyloma*. The appearance of the lesion may be helpful in distinguishing two smuts on a given host, but is no guide to the appearance of any species on other hosts.

RECENT SEED TREATMENT AND OTHER TESTS WITH SOYBEANS IN ONTARIO

A. A. HILDEBRAND, Dominion Laboratory of Plant Pathology, Harrow, Ont.

Coincident with a rapidly increasing acreage of soybeans in Southwestern Ontario, has been the discovery of an increasing number of diseases that now total thirteen, of which eight are known to be seed-borne. In a series of experiments (randomized, five-replicate design), the efficacy of Spergon, Arasan and Fermate has been tested on seed lots of the variety A.K. Harrow differing widely as to germinability, disease potentiality and degree of seed-coat injury. With poor-quality seed, and the cracked-coat fraction of an otherwise high-quality seed, treatment with Spergon accelerated and increased emergence and increased yield. These were the only instances, however, in which increased early stands of plants were found to be correlated with statistically significant increases in yield.

In an experiment designed to investigate the relationship that rate of planting might bear to incidence of disease and yield, the virtual absence of disease, except Brown Spot caused by *Septoria Glycines* Hemmi, rendered the experiment of no real pathological significance. From the agronomic standpoint, however, it yielded information of considerable interest and value for the results showed a complete lack of correlation between stands of plants differing numerically by a ratio almost as high as 4:1, and yield. It could only be concluded that an increase in early stand of plants resulting from treatment or selection of seed should not be regarded as necessarily indicating a corresponding increase in yield.

In a varietal resistance test, Earlyana was most susceptible, Lincoln and Richland were intermediate in susceptibility, and Harman and Harrow A (a promising unnamed selection) were most resistant to Brown Spot. Incidence of Brown Spot was in no way correlated either with treated or untreated seed.

LIST OF PAPERS
PUBLISHED BY MEMBERS OF THE CANADIAN PHYTOPATHOLOGICAL SOCIETY
Between June 1, 1944, and May 31, 1946.

1. AYERS, G. W. Studies on the life history of the club root organism, *Plasmodiophora Brassicae*. Can. Jour. Res. C, 22:143-149. 1944.
2. BAILEY, D. L. Canadian plant pathology in retrospect and prospect. Agr. Inst. Rev. 1:41-52. 1945.
3. BERKELEY, G. H. and R. S. WILLISON. Virus diseases of stone fruits in Ontario. (Abstract) Proc. Can. Phytopath. Soc. 12:21-22. 1944.
4. ——————— and J. K. RICHARDSON. Tomato diseases. Canada Dept. Agr. Bull. 122. 1944.
5. ——————— and G. C. Chamberlain. Diseases of the raspberry. Canada Dept. Agr. Farmers Bull. 123. 1944.
6. ——————— Basal rot of tomato. Phytopath. 34:615-621. 1944. (J. K. Richardson and G. H. Berkeley).
   ——————— (Also see 135).
7. BLACK, L. M. Some viruses transmitted by Agallian leafhoppers. Proc. Amer. Phil. Soc. 88:132-144. 1944.
8. ——————— A virus tumor disease of plants. Amer. Jour. Bot. 32:408-415. 1945.
9. ——————— The antigenicity of southern bean mosaic virus. Phytopath. 36:157-161. 1946. (W. C. Price and L. M. Black).
10. ——————— W. C. PRICE and RALPH W. G. WYCKOFF. The electron micrography of plant virus-antibody mixtures. Proc. Soc. Exp. Biol. and Med. 61:9-12. 1946. BOSHER, J. E. (See 91, 96, and 97).
11. BROADFOOT, W. C. and L. E. TYNER. A rapid method for determining the resistance of wheat varieties to root-rotting fungi. (Abstract). Proc. Can. Phytopath. Soc. 13:13. 1945.

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